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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,871	03/16/2005	Mark Thomas Johnson	NL 020849	2053

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EXAMINER	
LAM, VINH TANG	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,871	JOHNSON ET AL.	
	Examiner	Art Unit	
	VINH T. LAM	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 November 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) *2 and 13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,3-12,14 and 15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments/Amendment

1. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

2. Claims **2** and **13** are cancelled.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claim **1**, **3-6**, **10-12**, **14**, and **15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Tokunaga et al. (EP001079361A1 (already of record))**.

Regarding Claim **1**, **Tokunaga et al.** teach a display device for displaying an image comprising:

a plurality of display pixels (**[0068]**, Fig. **1**);

sensor (current detecting means **31**) for monitoring operating conditions of the display pixels including monitoring total charge data of the pixels (i.e. current is a movement of charge; [**0029**], [**0030**], Figs. **29 & 29**) and a controller (**MC**) coupled to receive data related to the operating conditions of the display pixels from the sensor for determining a brightness change of the pixels caused by the operating conditions, to generate a driving signal for driving the pixels in dependence on the total charge data ([**0028**], Figs. **28 & 29**).

However, **Tokunaga et al.** do not teach sensors (temperature detecting means) for monitoring operating conditions of the display pixels including monitoring temperature data relating to the pixels and a controller coupled to receive data related to the operating conditions of the display pixels from the sensors for determining a brightness change of the pixels caused by the operating conditions, to generate a driving signal for driving the pixels in dependence on the temperature data.

In the same field of endeavor, **conventional art** teaches sensor (temperature detecting means **TM**) for monitoring operating conditions of the display pixels including monitoring temperature data relating to the pixels and a controller coupled to receive data related to the operating conditions of the display pixels from the sensors for determining a brightness change of the pixels caused by the operating conditions, to generate a driving signal for driving the pixels in dependence on the temperature data ([**0050**], Fig. **1**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Tokunaga et al.** teaching of sensor for monitoring

total charge data of the pixels and a controller coupled to receive data of pixels from the sensor for determining a brightness to generate a driving signal for driving the pixels in dependence on the total charge data with **conventional art** teaching of sensor for monitoring temperature data relating to the pixels in order to benefit of generating a driving signal and pixels in dependence on the total charge data and the temperature data.

Regarding Claim **12**, **Tokunaga et al.** teach a method of generating a driving signal for driving a plurality of pixels of an organic electroluminescent display device for displaying an image ([**0068**], Fig. **1**), the device comprising sensor for monitoring operating conditions of the pixels; the method comprising:

obtaining data from the sensor (current detecting means **31**) related to the operating conditions including total charge data (i.e. current is a movement of charge; [**0029**], [**0030**], Figs. **29 & 29**);

determining a brightness change of the pixels caused by the operating conditions ([**0028**], Figs. **28 & 29**); and

generating a driving signal in dependence on the total charge data ([**0028**], Figs. **28 & 29**).

However, **Tokunaga et al.** do not teach obtaining data from the sensor related to the operating conditions including temperature data relating to the pixels and generating a driving signal in dependence on the temperature data.

In the same field of endeavor, **conventional art** teaches obtaining data from the sensor (temperature detecting means **TM**) related to the operating conditions including

temperature data relating to the pixels, generating a driving signal in dependence on the temperature data ([**0050**], Fig. **1**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Tokunaga et al.** teaching of obtaining data from the sensor related to the operating conditions including total charge data, determining a brightness change of the pixels caused by the operating conditions, and generating a driving signal in dependence on the total charge data with **conventional art** teaching of obtaining data from the sensor and generating a driving signal in dependence on the temperature data in order to benefit of improving image quality by having the display driving method comprising obtaining data from the sensors, determining a brightness change of the pixels caused by the operating conditions, generating a driving signal in dependence on the total charge data and the temperature data.

Regarding Claims **3** and **14**, **Tokunaga et al.** teach the display device according to claim 1 and the method according to claim 12, wherein the controller is adapted to derive an acceleration factor from the temperature data ([**0102**], Fig. **9**) and to adjust the driving signal depending on the product of the total charge data (i.e. current and voltage relationship; [**0025**], Fig. **27**) and the acceleration factor ([**0102**], Fig. **9**).

Regarding Claim **4**, **Tokunaga et al.** teach the display device according to claim 1, wherein the temperature sensor comprises at least one reference pixel ([**0029**], Fig. **29**); and temperature determination means adapted to determine a temperature in

dependence on at least one temperature-dependent characteristic of the reference pixel ([**0069**], Fig. **1**).

Regarding Claim **5**, **Tokunaga et al.** teach the display device according to claim 1, wherein the sensors comprise at least one reference pixel, and monitoring means adapted for determining degradation state data of said reference pixel, said controller being adapted to generate said driving signal taking account of said total charge data and said degradation state data (**[0043]**, Fig. **29**).

Regarding Claim **6**, **Tokunaga et al.** teach the display device according to claim 5, wherein a photodiode is present to measure the degradation state data of said reference pixel (**[0094]**, Fig. **5**).

Regarding Claim **10**, **Tokunaga et al.** teach the display device according to claim 1, wherein the sensors comprise means to sense a relation between a reverse current and a reverse voltage of the pixels (i.e. the preset values stored in ROM or RAM functioning similarly to reverse current and a reverse voltage relationship) for deriving degradation state data for the pixels, and said controller is adapted to generate said driving signal taking account of said degradation state data (**[0167]**, **[0171]**, Figs. **19 & 20**).

Regarding Claim **11**, the display device according to claim 10, wherein the means are adapted to derive the degradation state data when the display device is turned on only which any data would be obviously retrieved.

Regarding Claim **15**, **Tokunaga et al.** teach the display device according to claim 1, wherein a total charge data history is updated based on the temperature data (i.e. varied in currents are compared and adjusted; **[0167]**, **[0171]**, Figs. **19 & 20**).

4. Claim **7-9** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Tokunaga et al. (EP 1 079 361 A1 (already of record))** in view of **Cok et al. (EP 1 158 483 A2 (already of record)).**

Regarding Claim **7**, **Tokunaga et al.** teach the display device according to claim 5.

However, **Tokunaga et al.** do not teach that the pixels comprise at least two sub-pixels of a different type, and at least one reference pixel for each type is present.

In the same field of endeavor, **Cok et al.** teach the pixels comprise at least two sub-pixels of a different type, and at least one reference pixel for each type is present (**[0019]**, FIG. **2**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Tokunaga et al.** teaching of the display device wherein the sensors comprise at least one reference pixel, and monitoring means determining degradation state data of the reference pixel, the controller to generate the driving signal corresponding to the total charge data and the degradation state data with **Cok et al.** teaching of the pixels comprise at least two sub-pixels of each different type in order to benefit of improving the color quality image since pixels of different color having different degrading rates by having the display device wherein the sensors

comprise at least one reference pixel, and monitoring means determining degradation state data of the reference pixel, the controller to generate the driving signal corresponding to the total charge data and the degradation state data, and wherein the pixels comprise at least two sub-pixels of each different type.

Regarding Claim **8**, **Tokunaga et al.** teach the display device according to claim 5.

However, **Tokunaga et al.** do not teach the controller is adapted to provide each reference pixel with a driving signal corresponding to an average brightness level of the respective types.

In the same field of endeavor, **Cok et al.** teach the controller is adapted to provide each reference pixel with a driving signal corresponding to an average brightness level of the respective types (**[0015]**, FIG. **1**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Tokunaga et al.** teaching of the display device wherein the sensors comprise at least one reference pixel, and monitoring means determining degradation state data of the reference pixel, the controller to generate the driving signal corresponding to the total charge data and the degradation state data with **Cok et al.** teaching of the controller to provide each reference pixel with a driving signal corresponding to an average brightness level of the respective types in order to benefit of reducing cost, parts, and manufacturing processes by having the display device wherein the sensors comprise at least one reference pixel, and monitoring means determining degradation state data of the reference pixel, the controller to generate the

driving signal corresponding to the total charge data and the degradation state data, the controller being adapted to generate the driving signal taking account of the total charge data and the degradation state data, and the controller to provide each reference pixel with a driving signal corresponding to an average brightness level of the respective types.

Regarding Claim **9**, **Tokunaga et al.** teach the display device according to claim 5.

However, **Tokunaga et al.** do not teach the controller is adapted to ignore at least one of the total charge data and the data from the sensors for at least one sub-pixel.

In the same field of endeavor, **Cok et al.** teach the controller is adapted to ignore at least one of the total charge data and the data from the sensors for at least one sub-pixel (i.e. failure reference pixel is ignored; **[0020]**).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine **Tokunaga et al.** teaching of the display device according to claim 5 with **Cok et al.** teaching of the controller ignoring at least one of the total charge data and the data from the sensors for at least one sub-pixel in order to benefit of simplifying the design and manufacturing processes by having the display device according to claim 5, and wherein the controller ignoring at least one of the total charge data and the data from the sensors for at least one sub-pixel.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VINH T. LAM whose telephone number is (571)270-3704. The examiner can normally be reached on M-F (7:00-4:30) EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/VTL/

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